Shirley J. Conrad
Arizona Department of Environmental Quality
3033 N. Central Avenue
M0401A-422
Phoenix, AZ 85012-2809

Re: Notice of Proposed Rulemaking Concerning Section 303(d) Listing Methodology

Dear Ms. Conrad:

The U.S. Environmental Protection Agency (EPA) has reviewed the proposed rule describing a water quality assessment and Section 303(d) listing methodology. EPA is responsible for reviewing and acting upon State 303(d) listing decisions which will be based on an assessment methodology. In anticipation of the next listing submission in 2002, we have conducted a detailed assessment to determine whether the proposed rule is likely to result in listing decisions which are consistent with Clean Water Act and associated federal regulatory requirements.

ADEQ has clearly devoted substantial effort in crafting the proposed rule, and we understand that it is difficult to craft rule language which addressed both the requirements of HB 2610 and the Clean Water Act. We support your objective of improving the quality of data and analysis supporting listing decisions and believe you have identified several effective mechanisms for attaining this objective. We also appreciate your staff's efforts to solicit input from EPA and other stakeholders during the rule development process.

Several provisions of the proposed rule appear to conflict with federal listing requirements. The methodology would set extremely stringent thresholds for listing based on data quality, data quantity, and standards interpretation requirements. As a result, the Section 303(d) listing assessment may improperly exclude useful data and information from consideration and, as a result, miss a significant number of impaired and threatened waters.

This letter identifies the rule provisions that appear to conflict with federal listing requirements and other provisions that appear inconsistent with sound environmental science practices or are unclear. Where possible, the letter also identifies potential approaches to reconciling inconsistencies between the requirements of HB 2610 and of the Clean Water Act and associated federal regulations.

EPA understands that ADEQ is responding to a state statutory mandate, and we are not asking you to issue a rule that is inconsistent with your state law mandates. Moreover, we understand that EPA does not explicitly approve or disapprove state listing methodologies under

currently applicable federal regulations. However, we are required to approve or disapprove the state list submissions based on the State's selected assessment methodology. Therefore, we are obliged to point out instances where the listing rule interpreting HB 2610 appears to be inconsistent with federal statutory and regulatory requirements.

We hope to work with ADEQ to resolve apparent conflicts in state-federal requirements as we complete the 2002 listing process. It is not clear how many provisions of the rule will actually be applied since some provisions are very prescriptive while others are quite vague and merely suggest criteria to be considered when making listing or TMDL determinations. Therefore, the actual listing outcomes may or may not be inconsistent with our requirements depending on how some of the less clear provisions (e.g., the weight of evidence provisions of R18-11-604 B) are applied. We hope to understand your staff's judgments concerning the prospective application of data and information which would not meet the more stringent data quality requirements established by your State law, but which may be required to be considered pursuant to federal regulations.

We have essentially the same concerns about the rule (and the underlying state statute) that we have expressed to ADEQ since the law was initially proposed. EPA provided preliminary comments in February, 2001 and then in June, 2001 which indicated that several rule provisions would likely result in listing decisions which are inconsistent with federal listing requirements. We have most of the same concerns about the proposed final rule.

Key Concerns About the Proposed Rule

EPA is most concerned about 8 aspects of the proposed rule, which are discussed in greater detail in the following sections:

- data quality and data representativeness requirements,
- procedures for assessing exceedences of numeric water quality standards,
- procedures for assessing exceedences of narrative water quality standards and non-traditional water quality data and information,
- unclear mechanisms for assessing and listing threatened waters,
- sections providing exemptions and exclusions from listing,
- a "weight of evidence" approach which does not clearly articulate how multiple lines of evidence will be considered in list a water body,
- less stringent "delisting" procedures than are used to list waters, and
- very limited and inadequate technical and legal rationales for the proposed assessment approaches.

Inconsistencies With Federal Requirements

ADEQ managers have asked us to clearly identify elements of the rule which conflict with federal statutory or regulatory requirements. As discussed above, it is somewhat difficult to provide a definitive list of these elements because it is not clear how certain rule elements will actually be interpreted and applied by ADEQ. Based on our review of the rule and discussions

with ADEQ staff, the rule elements which appear to be inconsistent with federal requirements include:

1. Provisions for excluding from consideration data and information which do not meet the State's preferred tests of data quality and representativeness. These elements appear to conflict with 40 CFR 130.7(b), which requires the state to gather and consider all existing and readily available data and information in the listing process. Moreover, the rule and accompanying preamble do not provide a sufficient rationale for a decision to exclude data and information from consideration, as required by 40 CFR 130.7(b)(6).

2. Procedures for assessing exceedences of numeric standards for many conventional and some toxic pollutants. Some of these procedures appear to be more stringent that existing state standards and federal regulatory requirements without providing a sufficient technical or legal rationale for their inclusion.

3. Provisions which bar the assessment of narrative standards exceedences unless the State has adopted formal implementation procedures. These provisions conflict with 40 CFR 130.7(b)(3), which requires assessment of all applicable water quality standards, including narrative criteria, in the listing process.

4. No provisions for listing threatened waters. Federal regulations at 40 CFR 130.7(b) and 130.2(j) require the identification of waters which do not or are not expected to meet applicable water quality standards. As described in EPA's August, 1997 listing guidance, States are expected to assess potentially threatened waters and to list waters which are expected to exceed applicable standards during the following 2 year period. The proposed listing rule appears to make no provision for assessment of water quality trends or other data and information which could support a finding that a waterbody is threatened.

5. No description of technical rationales for assessment methods. Although the preamble provides some discussion of the basis for certain methods, the rule package does not provide a sufficient description of the scientific or legal rationales supporting many proposed listing criteria. Federal regulations at 40 CFR 130.7(b)(6) require the state to submit its listing methodology with its list and to provide good cause for decisions not to list individual waterbodies. In addition, the same regulation requires the state to describe its rationale for deciding to exclude any existing and readily available data and information from consideration in the listing process.

Data Quality and Data Representativeness

We are concerned that the data quality and associated documentation requirements in R18-11-602 are unreasonably restrictive and would result in exclusion of data and information which would assist in scientifically valid water quality assessments. For example, information concerning waste disposal methods and the content of the health and safety plan would not appear relevant in determining the reliability of the data. In addition, we see no reason to require monitoring entities to maintain data for the duration of the listing (particularly given that ADEQ will have the same information in its files).

We recognize that there is a vague provision in subsection A.3 that enables ADEQ to consider data that does not meet the letter of these quality assurance/control requirements. However, this provision appears to set virtually the same standard of expected data quality in order for data to be considered at all in the assessment process. Moreover, this subsection appears to limit data analysis to data collected by agencies or dischargers (see subsection A.3.b and c).

These provisions appear to run counter to the regulatory requirement that the state assemble and consider all existing and readily available data and information, and that the state provide a "good cause" rationale for excluding data and information from consideration (see 40 CFR 130.7(b)). These regulatory provisions create a rebuttable presumption that all readily available data and information will be used in the assessment process. A great deal of useful data from STORET, academic and agency reports, and volunteer monitoring groups would appear to be excluded from consideration under the proposed rule, an outcome which appears inconsistent with the federal requirements.

EPA's 1997 Section 305(b) guidance advises states to consider data quality, and to place greater reliance on higher quality data sets than on lower quality data sets. However, we support eliminating data and information sources from consideration in the assessment process only in individual cases where metadata show a very high likelihood that the data or information is unreliable. We expect the default presumption to be that data and information sources will be considered absent very persuasive evidence that
they are unreliable. The proposed rule appears to create the opposite presumption.

We are very concerned that setting such a high data quality expectation will result in exclusion of reasonably high quality data from consideration. To set this expectation with limited prior notice to monitoring entities may provide inadequate opportunities for interested parties to modify or strengthen monitoring efforts consistent with the State's newly established data quality expectations. It would be more reasonable to indicate that higher quality data will be weighed more heavily in the Section 303(d) listing assessments than lower quality data, and to provide a protocol for weighting data sets based on reliability.

Similarly, the requirement to submit sample plans which show the data is "representative" from a spatial and temporal standpoint is vague and unreasonably restrictive. Data is collected for many purposes, and in our experience much data is collected using sampling designs which do not assure that the data is spatially and temporally "representative", as the draft rule appears to define it. States may consider the representativeness of data and consider the sampling designs used to collect data and information. EPA supports evaluation of where and when data were collected, and recommends that States request or otherwise obtain basic metadata concerning sampling design and representativeness. If states intend to consider sample representativeness, EPA expects the states to describe how they will consider sample plan elements and data representativeness in their assessment processes. The draft rule provides neither a clear explanation of how this will be done, nor a sound scientific rationale for requesting it. States may rely more heavily on data demonstrated to be temporally or spatially representative in its coverage. However, we cannot support eliminating data and information

sources from consideration in the assessment process simply because they are not demonstrated to be "representative". Water quality conditions of concern for beneficial use support are often characterized by extremes. We would support exclusion of data and information based on concerns about their "representativeness" only in individual cases where metadata show a high likelihood that the data or information is unreliable.

What would EPA expect in the 2002 listing submittal with respect to data quality expectations, data inclusion and data representativeness? We expect states to document how all existing and readily available information sources were evaluated and considered in the assessment process. We expect states to provide an explicit, case-by case rationale for any decision to exclude data or information from consideration based on data quality or data representativeness considerations. States may not categorically exclude data or information from consideration simply because it does not meet the state's preferred data quality objectives or is not considered to be "representative". In addition, states may not categorically exclude data or information from consideration simply because it does not have statistical characteristics (e.g., independence, lack of bias, or lack of serial correlation) necessary to use the data through the state' preferred analytical methods (e.g. binomial assessment approaches). Instead, we expect the default presumption to be that data and information sources will be considered absent very persuasive evidence that they are unreliable. In general, ADEQ should provide a more detailed technical justification for the methodological choices reflected in the final rule with respect to data quality, data representativeness, and other methodological elements.

We would also expect the State to provide to EPA any data or information which the state chooses to exclude from consideration along with a rationale for doing so. EPA may conduct an independent review of the data and information along with the state's rationale for excluding them from consideration. If EPA determines the data and information were improperly excluded from consideration, EPA will consider the data and information along with any other information the state did consider in its assessment of the subject waterbody in our evaluation of the state's listing decisions.

Finally, we are concerned that the "General Data Interpretation Requirements" in R18-11-603 are unreasonably and unnecessarily stringent. For example, it appears to be invalid to assume a value reported as less than the method detection limit (MDL) meets the standard if the standard is less than the MDL, which is often the case. EPA is also concerned that the provision for considering "statistical outliers" to be "invalid data" is unsupported by a sound scientific rationale, and inconsistent with standard statistical analysis practice. Finally, we understand proposed R18-11-603(2) to provide that field sample measurements which yield a value exceeding a standard are to be considered evidence of compliance with the standard if the exceedance is less than the manufacturer's specification for accuracy of the measuring equipment. We believe this provision may be inconsistent with standard methods of data analysis because it is based on a systematic bias in how uncertain sampling results are interpreted in this situation. It would appear more appropriate to question the accuracy of the data for compliance determination than to make optimistic assumptions that the data support a finding that the standard is met.

Assessment of Numeric Standards Exceedences

We are concerned that the proposed approach to assessing numeric standards exceedences may be unreasonably stringent and will likely result in missing too many waters which are very likely to be impaired or threatened.

First, the requirements concerning temporal and spatial independence of samples to meet the data quantity thresholds are unreasonably stringent and are unsupported by a clear technical rationale. In particular, the temporal independence requirement and associated protocol for averaging samples which are not temporally independent would greatly dilute the value of synoptic wet-weather sampling projects by failing to evaluate maximum values for a storm event when evaluating exceedences of many types of standards. ADEQ should revise this section to establish less stringent expectations concerning sample independence, or should clarify that data which does not meet these independence tests will be considered elsewhere in the process of assessing potential exceedences of applicable water quality standards. ADEQ should explain its technical rationale for screening data for independence through the proposed procedure.

Second, some provisions of R18-11-604 C.1.c. appear to conflict with Arizona water quality standards. For example, see R18-11-604 C.1.c.i.(2) (interpreting chronic 4 day standards based on 7 day measures of central tendency), (4) (interpreting single sample maximums for turbidity, nitrogen, and phosphorus based on measures of central tendency), and (6) (interpreting single sample maximum standards in R18-11-112 based on measures of central tendency). These provisions should be revised to be consistent with the applicable acute and chronic standards.

Third, the provision requiring a minimum number of samples and sample events (R18-11-604 C.2) provides no science-based rationale for the suggested minimum number of samples and sampling events needed to carry out an assessment. It appears that the proposed minimum sample provisions are substantially more stringent than ADEQ used in its 1998 Section 303(d) assessment. In addition, the discussion of seasonal impairment appears to create an additional requirement that data must be sufficient to show seasonal impairment whenever seasonal impairment is suspected. We are aware of no provisions in the water quality standards that interpret standards in this manner, and are concerned that this requirement may result in exclusion of impaired waters from the list without a sound legal or scientific basis. We recommend that ADEQ consider revising these minimum sample size provisions to be more inclusive and provide a technical rationale to support the proposed minimum sample size provisions. In addition, the provisions concerning seasonal impairment should be deleted or revised to be consistent with applicable standards.

Fourth, the binomial approach described in R18-11-604 C.3 for assessing sample sizes of 10 or greater has several problems. The approach is heavily biased toward minimization of type 1 error (listing waters which are not, in fact, impaired) at the cost of ensuring very high type 2 error (not listing waters which are, in fact, impaired). The preamble (p. 7) properly recognizes the prospective environmental and human health costs of type 2 error, but essentially discounts these prospective costs. Instead, the preamble appears to imply that reduction of public resource expenditures is more important than avoidance of likely environmental and human health costs.

We disagree that this is a reasonable weighing of costs associated with inaccurate assessment decisions. ADEQ should provide a more detailed and persuasive rationale for this approach to error management in the assessment process.

Moreover, the proposed binomial approach is based on an incorrect reading of EPA guidance concerning allowable water quality standards exceedence rates. The assertion that EPA endorses use of a 10% standards exceedence rate is incorrect. EPA guidance has suggested the use of a 10% sample exceedence rate only to assess sample sets to characterize the underlying water quality conditions with respect to conventional pollutants (see below for further discussion of this misinterpretion of EPA guidance). The use of this exceedence rate in a binomial assessment method has not been shown to be protective of water quality nor consistent with water quality standards requirements. It is likely that use of this exceedence rate will increase the number of waterbodies that do not meet water quality standards which are missed in the listing decision.

Finally, the relationship between the assessment procedures in R18-11-604 C and D is unclear. We understand from discussions with ADEQ managers that ADEQ intends that waters will be listed if there are a certain minimum number of exceedences for certain standards regardless of sample size, and we strongly support this goal. However, R18-11-604 D states that "Notwithstanding [the prior sections] and when there are less than ten samples" evidence of impairment exists based on the existence of fewer exceedences. This language appears to limit the applicability of subsection (D) to instances when there are less than 10 samples. As a result, it appears that the approach used to assess waters with more than 10 samples appears to be substantially less protective than the approach used to assess waters with less than 10 samples. For example, a single exceedence of an acute standard would be sufficient to trigger a listing if the sample size were 9; however, 3 exceedences would be needed for the same standard if the sample size were 10. Moreover, the technical basis for the cutoff levels established in subsection (D) is unclear, and is substantially more stringent than the methodology used for Arizona's 1998 listing decisions.

We recommend that ADEQ clarify the relationship between the assessment methods described in subsections R18-11-604 C and D. ADEQ should explain that for any toxic pollutant or pollutant for which Arizona water quality standards are expressed as a single sample maximum, the provisions of subsection D apply regardless of sample size. Finally, ADEQ should explain a clearer technical basis for the rather stringent cutoff levels proposed in subsection D.

EPA generally supports the use of appropriate statistical tools, including the binomial approach, for water quality data analysis. State analysts have significant discretion in designing a binomial assessment methodology; however, EPA recommends the following approaches to address our concerns about Arizona's proposed approach to binomial analysis for listing purposes:

Specification of Type 1 and Type 2 Error

The rule package provides an inadequate rationale for Arizona's design of the binomial assessment approach. The technical paper referred to in the preamble is only one of several references concerning the use of this statistical procedure (including other references previously identified by EPA in earlier comments to the State), was not published nor peer reviewed, and was prepared directly to support Florida's preferred listing methodology. As such, it provides an insufficient analytical basis for ADEQ's rule proposal. Moreover, ADEQ does not follow several key recommendations in that paper, including the recommendation that a separate binomial approach be applied for delisting decisions to test the alternative null hypothesis that waters are impaired. In particular, the referenced paper provides no rationale supporting Arizona's proposed 10% exceedence rates or preference for minimizing type 1 error at the cost of increasing type 2 error.

We believe it is most consistent with sound science and statistical practice to balance type 1 and type 2 error. There is no statutory or regulatory basis for systematically favoring reduction of type 1 error in 303(d) listing at the cost of greatly elevating type 2 error. We recommend that you consult the analysis and supporting table in Smith, et al, 2001 (p. 611) which illustrates suggested cutoff levels which balance error for different sample sizes. As discussed in the draft Consolidated Assessment and Listing Methodology (CALM) guidance, EPA recommends balancing type 1 and type 2 error rates at the 15% level. In general, EPA supports setting a somewhat lower type 1 confidence rate in order to help balance type 2 error. In the long run, States should strive to increase sample sizes as the best approach to managing type 2 error.

In cases where a waterbody was previously identified as impaired or threatened (e.g., through a prior 303(d) list, 305(b) report, or other water quality assessment result), States should account for this prior information in the design of the binomial approach. Methods which facilitate consideration of this prior information include:

- Establishing a separate binomial cutoff regime which tests this alternative null hypothesis to consider delisting previously listed waters (see Florida approach as an example),

- Using Bayesian statistical approaches which explicitly account for prior information about waterbody status (see Smith, et al, 2001) for an introduction to this approach.

- Balancing type 1 and type 2 error rates, which reduces the difference in assessment results depending upon the selection of null hypothesis.

Water Quality Standards Exceedence Rates

ADEQ should provide a specific rationale supporting the selected exceedence rate or rates, supported by references to state water quality standards, WQS implementation procedures, EPA criteria or guidance documents, academic studies, or other information sources to provide support for the rationales. The 305(b) guidance and other EPA guidance should not

be cited as authority in support of selection of a 10% exceedence rate as the binomial test exceedence rate. The preamble mischaracterizes EPA guidance in this regard. EPA guidance refers to the 10% exceedence rate as a method for assessing data sample sets-- not as an acceptable exceedence rate in the "population". Moreover,
EPA guidance refers to a 10% exceedence rate only for conventional pollutants-- not toxic pollutants. Section 305(b) and CALM guidance are intended to provide guidance concerning the assessment of limited sample sets for purposes of making assessment determinations—they are not intended to provide EPA's interpretation of the actual acceptable rate of WQS exceedences in receiving waters. As we discussed in San Francisco, it would be more consistent with EPA's recommended criteria development approaches to assess a 95% compliance rate for conventional pollutants, and a more stringent compliance rate for toxic pollutants, in the context of a binomial assessment method.

The CALM guidance and previous 305(b) guidance suggested an impairment finding in cases where 10% of data points exceed the standards for conventional pollutants, in part to reflect the expected recovery time associated with aquatic exposures to conventional pollutants as well as the expected sampling error issues and prospects for type 1 error. Because the binomial approach already accounts for and directly manages uncertainty associated with assessments based on small sample sizes, including type 1 error in particular, it would be inappropriate to apply the 10% exceedence rate directly within the context of a binomial assessment approach. To use a 10% test in a binomial
assessment context would, in essence, result in "double counting" of allowances intended to limit type 1 error.

Assumptions Concerning the Data Sets To Be Analyzed

We agree that when applying a binomial statistical approach, the State should analyze data sets to ensure that key assumptions concerning the data set are met with respect to the shape and normality of the distribution, the representativeness of the data set of underlying water quality, and the presence of bias, serial correlation, or autocorrelation in the data sets. We expect that the State will document its analysis which shows these assumptions are met to a reasonable degree. Not all data sets must meet every assumption completely, but the State should discuss potential errors associated with application of binomial analysis methods to data sets that do not meet one or more key assumptions. We want to stress that the data should be assessed through another assessment method if the assumptions necessary to carry out a binomial assessment are not met.

Assessment of Narrative Standards Exceedences

The proposed rule provides that narrative standards can be applied only if implementation procedures have been formally adopted. This provision conflicts with EPA regulations which require consideration of all applicable water quality standards in the list development process (40 CFR 130.7(b)). The proposed rule also would establish substantial barriers to the interpretation of narrative standards even in cases where implementation procedures had been adopted (e.g.,

R18-11-604 B.2 (requirements to show numeric standards are not protective and to provide additional evidence in subsections a, b, and c), and D (provisions which only address toxicity narrative standards and do not address how data and information will be considered to address other narrative standards)). In addition, the proposed rule provides no information about how non-traditional data (e.g., sediment, animal tissue, physical and biological data will be considered) and information (e.g., advisories, information on fish kills, reports of taste and odor problems, and other non-quantified information) would be considered in assessing narrative standards exceedences. The State's methodology should demonstrate that these non-traditional types of data and information are carefully considered in the assessment process.

Listing of Threatened Waters

The proposed rules provide no clear provisions for assessing and listing threatened waters. Pursuant to the requirements of 40 CFR 130.7, as interpreted in our 1991 and 1997 guidance documents, EPA expects each state to describe how it will assess whether waters which currently attain standards will likely fall out of attainment during the next listing cycle. The proposed rule makes reference to the use of certain types of data for trend analysis purposes, but does not actually describe how or if data will be analyzed for trends. We expect the listing submission to clearly show how the requirement to consider threatened waters was addressed.

Weight of Evidence Approach

The "weight of evidence" approach in R18-11-604 B.1 does not explain how ADEQ will consider multiple lines of evidence in making listing decisions. It appears, based partly on language in the preamble, that ADEQ may not list waters where a single line of evidence is sufficient to demonstrate a water quality standards exceedence. We understand from our conversations with ADEQ staff that this is not the State's intent. There is no basis in State standards or federal regulations to require multiple lines of evidence to support a determination that a water is impaired or threatened. Water quality standards must be applied independently for listing assessment purposes. In addition, instances may arise where no single line of evidence is sufficient to support a listing decision, yet information from several lines of evidence combines to provide a basis to list a waterbody. EPA strongly encourages ADEQ to adopt this perspective to a weight of evidence approach, and clarify how this section will be applied consistent with this perspective.

Delisting Provisions

The proposed method for removing a stressor or waterbody from the 303(d) list is vague, but appears to be substantially less stringent than the rules for listing new waterbodies. The State's rationale for proposing this separate delisting section is unclear and should be described more clearly. It is unclear whether these delisting provisions will apply to waters on the 1998 303(d) list. EPA would expect the state to show good cause, based on analysis of new data or information, to support decisions to delist waters from the State 303(d) list.

Exemptions and Exclusions

Several sections of the proposed rule appear to exclude particular kinds of data and information from consideration in the assessment process. The State would be required to show good cause why any existing and readily available data and information is excluded from consideration. We are particularly concerned about the provision to consider "statistical outliers" to be invalid data (R18-11-603 4). In addition, as discussed above, we are concerned that data which does not meet every quality assurance or representativeness test and information concerning narrative standards exceedences appears to be excluded from consideration.

We are also concerned that some exemptions in R18-11-604 A.2 appear to be inconsistent with 303(d) listing requirements. Arizona water quality standards at R18-11-117 and 118 do not appear to create categorical exemptions from application of standards. While the activities identified in these sections may not be subject to regulation, the receiving waters themselves would have to be listed if applicable water quality standards are exceeded. In addition, proposed R18-11-604(A)(3) would prohibit the consideration of exceedances based on data reflecting the impact of spills, upsets, bypasses, or NPDES permit violations, that are the subject of ADEQ or EPA enforcement or remediation measures. We see no rationale to ignore otherwise relevant data on these grounds. Where enforcement or remediation successfully returns a water to conditions meeting water quality standards, the water can be delisted for that reason. However, initiating an enforcement or remediation action alone is an insufficient basis to disregard data showing that standards are being exceeded.

It appears that the State may be intending to invoke the "offramp" provision in 40 CFR 130.7(b)(1) which enables states to decide not to list threatened or impaired waters where required technology-based controls or other required controls are sufficient to bring about attainment of applicable standards. If this is the State's intention, EPA would expect the State to provide documentation sufficient to support the following findings for each water body and pollutant to which the "offramp" provision is applied:

- the discharge controls are required and enforceable,
- the controls are specific to the waterbody and pollutant(s) of concern ,
- the controls are in place or firmly scheduled for implementation,
- the controls are sufficient, with a high degree of certainty, to bring about attainment of water quality standards within the next two years.

Proposed R18-11-604(A)(4) would apparently bar ADEQ, when "making a TMDL decision", from considering data collected in a mixing zone if the data shows that limits in the zone are met. First of all, data collected in mixing zones may prove relevant to analysis of many pollutants and associate standards, including pollutants to which mixing zone pollutants do not apply and acute water quality standards. Second, we believe that dischargers would wish to have ADEQ consider data showing compliance with their NPDES permit conditions, including those related to mixing zones, when ADEQ allocates loads as part of the TMDL decision. We are concerned that barring the consideration of such data will impair ADEQ's ability to fully analyze water quality conditions in and around mixing zones as part of TMDL development, and to make the findings necessary to fairly allocate loads.

We recommend that the exemptions proposed in R18-11-604(A) be removed or revised to be consistent with state water quality standards and federal requirements concerning use of all existing and readily available data and information in the listing process. If the State is intending to apply the "offramp" provisions of 40 CFR 130.7(b), the rule should be revised to reflect the information requirements necessary to apply those provisions. If the State intends to exempt waters impaired due to spills and permit violations from listing under Section 303(d), we would expect the State to provide a legal and technical rationale supporting this proposed exemption.

Scientific, Analytical, and Legal Rationales for Rule Provisions

The proposed rule embodies numerous technical/scientific choices of methods for assessing data and information. Although the preamble provides some discussion of the basis for the rule provisions, it does not provide sufficient scientific, analytical, and legal rationales for the choices made. The state should provide a clearer rationale for its choices as part of a rulemaking process so that all stakeholders have a chance to understand and comment on the State's thinking. In any event, EPA will expect the State to provide more detailed information describing its scientific rationale for the data quality, data quantity, and other analytical elements of its chosen listing methodology in support of its listing decisions.

The preamble, section 8.A, indicates that the rules do not regulate private businesses or entities, and that some regulated parties may voluntarily submit data to ADEQ for consideration under the rulemaking and, if so, are required to meet the credible data requirements. The rules as proposed, however, appear to prevent dischargers and other interested parties from obtaining ADEQ consideration of existing and readily available data in the context of 40 CFR 130.7, unless those parties incur the substantial expense needed to provide the plans and meet the other obligations required by the rule.

EPA notes that the rules' prohibitions regarding ADEQ's consideration of data is not limited to the listing of impaired waters, but applies to all "TMDL decisions", including the prioritization of TMDLs, and the development of TMDLs and their implementation plans (see R18-11-601(15)). Consequently, the rules also appear to forbid ADEQ consideration of much data (and related argument and comment) of the kind that would be submitted to and, when submitted, must be considered by EPA and other States in their TMDL-related proceedings. We are concerned that the rule will result in unnecessarily complex State and EPA proceedings regarding Arizona's lists and TMDLs, in which the State-generated administrative record differs markedly from EPA's because data excluded from ADEQ's consideration was submitted to EPA through public comments or found by EPA to be appropriate for consideration. We are further concerned that each of these proceedings will likely require the resolution of claims that data should not have been considered by was, and claims that data should have been considered but was not. We expect that the agencies, dischargers and other interested persons will find these proceedings confusing and costly.

Moreover, where data is submitted which meets the usual standards of admissibility in administrative hearings but is rejected in a TMDL-related decision process (e.g., the load allocation process), we expect that there will likewise be great frustration. We expect that

ADEQ's ability to allocate loads most fairly and develop TMDL implementation plans most cost-effectively may also be impaired by the requirement that it confine its consideration only to data meeting the requirements of the proposed rule. If so, the sub-optimal allocations and implementation plans which may result will themselves impose additional, unnecessary costs. Finally, to the extent that differences between the two agencies' administrative records lead to differeing determinations regarding a Section 303(d) list or TMDL, the confusion, cost, and frustration will be exacerbated.

Other Questions and Concerns

The proposed priority ranking provisions are confusing and in many cases, not mutually exclusive. Therefore, it is not clear how waters will be ranked if they meet priority ranking criteria included in different priority categories. For example, a water may contain a species listed under the Endangered Species Act (a basis for a high priority ranking) yet also be proposed for delisting (a basis for a low priority ranking

EPA supports the proposal to target as high priorities waters in which ESA-listed species are present. How will the State determine whether such species are present? We strongly encourage the State to coordinate closely with the Fish and Wildlife Service, Department of Game and Fish, and other organizations with information concerning listed species to collect this information. We would also suggest revising this priority ranking factor to state that a high priority is appropriate except where the pollutant(s) causing impairment or threat are not expected to affect listed species or their habitat.

Several priority ranking criteria are based on convoluted logic. For example, the provision to rank ephemeral waters as a low priority also states that the water would be re-prioritized if it poses a threat to human health or aquatic life. When would it be re-prioritized—now or later? It would make more sense to create a higher priority ranking criterion for waters in which pollutants pose a threat to human health or aquatic life. In any event, most waters in the State are being listed due to exceedences of human health or aquatic life standards. Is the State suggesting that additional information concerning threats to human health or aquatic life would be necessary beyond the fact that standards are exceeded in order to invoke this provision? In another example, the rule proposes that a water would be considered a low priority if it is proposed for delisting. When would it be considered for delisting except at the same time the water is listed and receives its priority ranking? Would it be sufficient to invoke this provision to have any member of the public propose delisting?

The priority ranking section should be revised to establish a clear set of priority ranking factors and a clear methodology for applying them. EPA would oppose a provision to automatically set a low priority ranking simply because a water was proposed for future delisting.

The preamble (p. 6) notes that HB 2610 requires the preparation of a schedule not to exceed 15 years for TMDL development. The proposed rule does not appear to address TMDL scheduling, except to schedule all high priority TMDLs for the next two years. Although EPA supports the rapid development of TMDLs, we question whether it will be feasible to develop all

high priority TMDLs identified by ADEQ within two years following list approval, especially given the long timeframe required to adopt TMDLs through the HB 2610 process. Will the next list submission contain a schedule as requested in EPA's 1997 guidance? We would also note that EPA's 1997 guidance called for states to provide schedules for completing all TMDLs within 8-13 years of their initial listing date, or the 1998 listing date, whichever is later. A rationale for a 15 year timeframe would need to be prepared in support of a schedule timeframe in excess of the requested 8-13 year timeframe.

Finally, we note that the listing procedures do not clearly enable ADEQ to consider the magnitude of standards exceedences in assessing whether waters should be listed. We encourage ADEQ to revise the assessment procedures to provide for consideration of the magnitude of exceedences, particularly in cases where limited water quality data are available.

Conclusion

EPA shares Arizona's objective of making reliable 303(d) listing decisions based on robust data and information, and we commend your effort to interpret HB2610 in a reasonable manner. However, the proposed listing methodology may conflict with federal requirements. If the proposed rule is applied for the 2002 listing process, we are concerned that many impaired waters would be missed and would not be afforded the additional protection provided through the TMDL process.

EPA recommends that ADEQ carefully consider these comments and work with us to identify rule revisions which are consistent with both state law and federal requirements. If it is infeasible to revise the rule in a manner which fully reconciles state and federal requirements, we hope to work with you during the list development and EPA review process to make final listing decisions which are as consistent as possible with the State's goals and mandates while meeting all federal requirements. Please contact me at (415) 744-1860 or refer your staff to David Smith at (415) 744-2012.

Sincerely,

Alexis Strauss
Director
Water Division

Cc: Karen Smith
Linda Taunt
Michael Haire (EPA)

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